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Analysis**

FSQRA

MARCH 2001



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9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) Deputy Chief of Staff for Operations and Plans, HQDA ATTN: DAMO-ZD (Mr. Bettencourt) 400 Army Pentagon Washington, DC 20310-0400		10. SPONSORING / MONITORING AGENCY REPORT NUMBER		
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12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution unlimited		12b. DISTRIBUTION CODE A		
13. ABSTRACT (Maximum 200 Words) DAMO-ZD, the DCSOPS Technical Advisor, tasked CAA to “do deployment analysis on a 40 knot ship”. The ship in question is a proposed new ship design patented by FastShip, Incorporated. Time allowed was less than 1 week, so the project was data gathering, simple comparison of FastShip against a Large Medium Speed Roll on/roll off (LMSR) and model runs to determine impact of a FastShip on the TAA-07 base case deployment. Found no significant value to having one of these FastShips, because other limitations of the ship design/availability negated the minor advantage of greater speed across the Atlantic.				
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CAA-R-01-11

FASTSHIP ATLANTIC NDF PROPOSAL: QUICK REACTION ANALYSIS

SUMMARY

THE PROJECT PURPOSE was to determine the value of FastShip in military deployments.

THE PROJECT SPONSOR was the Deputy Chief of Staff for Operations and Plans, ATTN: DAMO-ZD (Mr. Bettencourt, Technical Advisor), Headquarters, Department of the Army.

THE PROJECT OBJECTIVES were to:

- (1) Identify the quantitative value of FastShip.
- (2) Identify actual, versus advertised, ship capabilities.
- (3) Identify other factors that would influence military utility.

THE SCOPE OF THE PROJECT. Gather accurate data on the ship. Compare it to existing sealift assets. Add it to model runs of Total Army Analysis - 2007 (TAA-07) force deployment to quantify value.

THE MAIN ASSUMPTION. None

THE PRINCIPAL FINDING. The ship does not add significant value to military deployment.

THE PRINCIPAL RECOMMENDATION is: do not support FastShip request for \$40M in National Defense Feature (NDF) money.

THE PROJECT EFFORT was conducted by LTC Michael Woodgerd, Mobilization and Deployment Division, Center for Army Analysis (CAA).

COMMENTS AND QUESTIONS may be sent to the Director, Center for Army Analysis, ATTN: CSCA-MD, 6001 Goethals Road, Suite 102, Fort Belvoir, VA 22060-5230.

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1 FASTSHIP PROJECT

1.1 Actual Tasker



“Have CAA do deployment analysis on 40 knot ship”

Figure 1. Actual Tasker

Mr. Bettencourt, DAMO-ZD, faxed down a page of notes from a meeting, and Mr. Vandiver passed the tasker to Mobility and Deployment Division (MD). The quote above was the discernible problem statement and a margin note cited “FastShip.” Further research showed that FastShip was a company proposing to build actual ships by that name.

The tasker gave the Center for Army Analysis (CAA) 3 working days to produce this analysis.

1.2 This “40 knot ship”: Ground Truth

FastShip proposal actually is:

One ship that could carry 2,000 STON
for 10,000 NM at 39 knots.

Figure 2. This “40 knot ship”: Ground Truth

This figure became necessary to grab audience attention. Department of the Army (DA) Staff believed that FastShip, Incorporated (hereafter FSI) would build four ships and that each one could carry 60 percent of a large medium speed roll on/roll off (LMSR) load (approximately 12,000 short tons (STON)) at 40 knots with no known range limit. DA Staff also contended that the ship would only draw 10 feet of water and could beach itself to offload. The price tag for incorporating National Defense Features (NDF) onto the four ships was supposedly \$40M.

LTC Woodgerd reviewed the fragmentary documentation that Deputy Chief of Staff for Logistics – Strategic Mobility Division (DALO-TSM) provided. Deputy Chief of Staff for Operations and Plans – War Plans Division (DAMO-SSW) provided better material for analysis. This took 2 of the 3 available days. A direct call to FSI showed that they only proposed allowing the government to use *one* ship of the four for the \$40M.

The performance parameters which led to the bullet shown come from a single printed page entitled TG-770 Fastship Sealift Payload/Range provided to the Navy by Fastship, Inc. Later analysis did show somewhat better performance. For a full picture of FS military capability, review CAA project FSII, Report number CAA-R-01-16 (to be published).

1.3 Bottom Line Up Front

- **FS greatest utility would be in a flexible deterrent option or certain other small-scale contingencies (SSCs)**
 - More capable than aircraft, but takes 5-12 days to have available, so decision to use must be made ahead of time.
 - Limited to the Atlantic, Mediterranean, and Baltic. Too wide for Panama Canal.
- **Single FS makes no significant difference to an MTW.**

Figure 3. Bottom Line Up Front

Given the 1 work day available once accurate information existed, we did a few Global Deployment Analysis System (GDAS) Model runs adding FastShip to existing Total Army Analysis (TAA) deployment runs. LTC Woodgerd also examined FastShip in comparison to an LMSR. Results are shown in following figures.

1.4 Methodology

The methodology used in this report is as shown below.

- Gathered data from FastShip, US Transportation Command (TRANSCOM), Military Sealift Command (MSC), DCSLOG, and DCSOPS. **This study is the only one that accurately shows the exact capability and the true details of the FastShip request.**
- Added one FastShip (FS) to lift assets for comparison run against TAA-07 base case deployment results to determine FS value added.
- Compared FS to LMSR in terms of speed, cargo capacity, range, and cost.
- Did “back of the envelope” comparison of FS against LMSR and C-17 in Southwest Asia (SWA) deployment.
- Additional GDAS Model runs compared TAA base case deployment results against other options: adding another LMSR to the fleet and adding four hypothetical 40-knot ships of larger capacity.

1.5 Analyst SOP

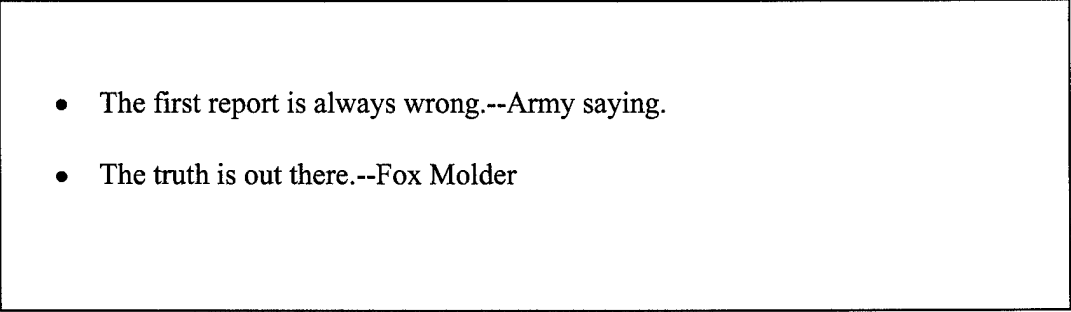
- 
- The first report is always wrong.--Army saying.
 - The truth is out there.--Fox Molder

Figure 4. Analyst SOP

These are very appropriate sayings, given all the misconceptions existing in the Pentagon about this ship. Unfortunately, no one asked CAA for any analysis of the program until about 1 week out from Congressional consideration of the NDF funding.

Much later, it became apparent that the NDF funds had been taken from that section of the budget to pay for cost overruns in a Marine Corps prepositioned afloat ship. Since that appropriated money no longer existed, the Army could expect to pay for the NDF features of FastShip.

1.6 FastShip Atlantic QRA History

- CAA Tasker: “Have CAA do deployment analysis on 40-knot ship.[FastShip Atlantic]”
- There is no known proponent for this proposal except for the company itself.** FastShip, Inc. briefed many times, but neither TRANSCOM, MSC, nor any known DOD entity formally endorses lobbying Congress for this money for this company
 - Specific proposal is from FastShip, Inc. Trying to start a high speed (39 knots) containership service between Philadelphia and Cherbourg.
 - Company is requesting that DOD lobby Congress to provide/redirect \$40M into National Defense Features (NDF) fund and earmark for FastShip, Inc. Money would pay for increased capabilities (deck strength, fire fighting systems, stern ramp, etc.) and equipment (chains, other) needed to carry military vehicles on ONE ship of proposed fleet.
- Several companies are interested in NDF money to modify existing ships. FastShip **is** the only **new** technology/ship design offered so far. NDF is a section of the budget Congress created, but is currently empty.

Figure 5. FastShip Atlantic QRA History

During the analysis, no Department of the Army, TRANSCOM, or MSC representatives admitted any support for this project. Nonetheless, widespread perception existed that “the Army” wanted FastShip.

After the results of this analysis became known, some DA Staff sections asked for further work on specific points. This led to two subsequent Fastship-related CAA studies documented as FastShip Incorporated (FSI) National Defense Features (NDF) Proposal, Quick Reaction Analysis and What is Four Days Worth?

1.7 Peeling the Onion: Facts About FastShip

Some of the facts regarding FastShip are listed below.

- FastShip, Inc. wants to start a containership service between Philadelphia and Cherbourg. Proposed ships use waterjet propulsors instead of propellers and rudder. Claim a 39-knot capability.
- FastShip seeks NDF money for one ship with military use. Ship would reconfigure to purely roll on/roll off (RO/RO) use east of the US--ship is too wide for Panama Canal. If called, ship would be available to load on the East Coast sometime between C+5 and C+12--depends upon where it is when called up.
- Trades off cargo capacity and range for speed. Propulsion system raises the stern of the ship so that it rides near the surface of the water. This reduction in resistance gives it the speed, but that also causes the very limited weight capacity.
- Proprietary cargo handling system in the two ports is for containers only--capability does not apply if ship used as RO/RO.
- Ship could not reach SWA without refueling in the Med if it carries more than 2,000 STON. If it carries up to 8,000 STON, it can barely cross the Atlantic.

1.8 LMSR/FastShip Comparison

	Speed (knots)	Capacity (STON)	Capacity (SQ FT)	Range (NM)	Cost (\$M)
LMSR	24	20,344	400K	12,000	282
FastShip	39	2000 @ max speed	147-158K	10,000	40*
<p>*Est. per ship cost for design changes/additional equipment. \$40M total for the one ship. Company also cites \$20M (perhaps only \$5M now for the one ship) per year as well for NDF--specifics unknown.</p>					

Figure 6. LMSR/FastShip Comparison

Figure 6 gives a comparison of key factors of existing LMSR and proposed FastShip. LMSRs are the newest ships in the inventory and the most well known.

1.9 Deployment Comparison: East Coast US to SWA

A comparison of deployment from East Coast to Southwest Asia (SWA) is shown below. Note that later studies would show that this first, rushed analysis did not give FastShip proper credit for cargo capacity.

- Moving units from Savannah, GA to Ad Damman, Saudi Arabia. (8,871 nm).
- FS: one-way trip is 12 days (load/steam/unload) with 2,000 STON.* If 3,300 STON** carried, add 1 day for refueling in Med = 13 days.
- C17: 2,000 STON would be 44 C-17 missions. If one single C-17 carried the 2,000 STON over the same route, it would take 92 days.
- LMSR: One-way trip is 20 days (load/steam/unload) with 20,344 STON.
- FS would take 111 days to deliver the same 20K STON that the LMSR delivered in 20 days.

*2,000 STON size sample units are a main spt bn or a heavy helicopter bn.
**3,300 STON size sample unit is an MLRS bn.

1.10 Comparative Impacts on CS/CSS Unit Closure

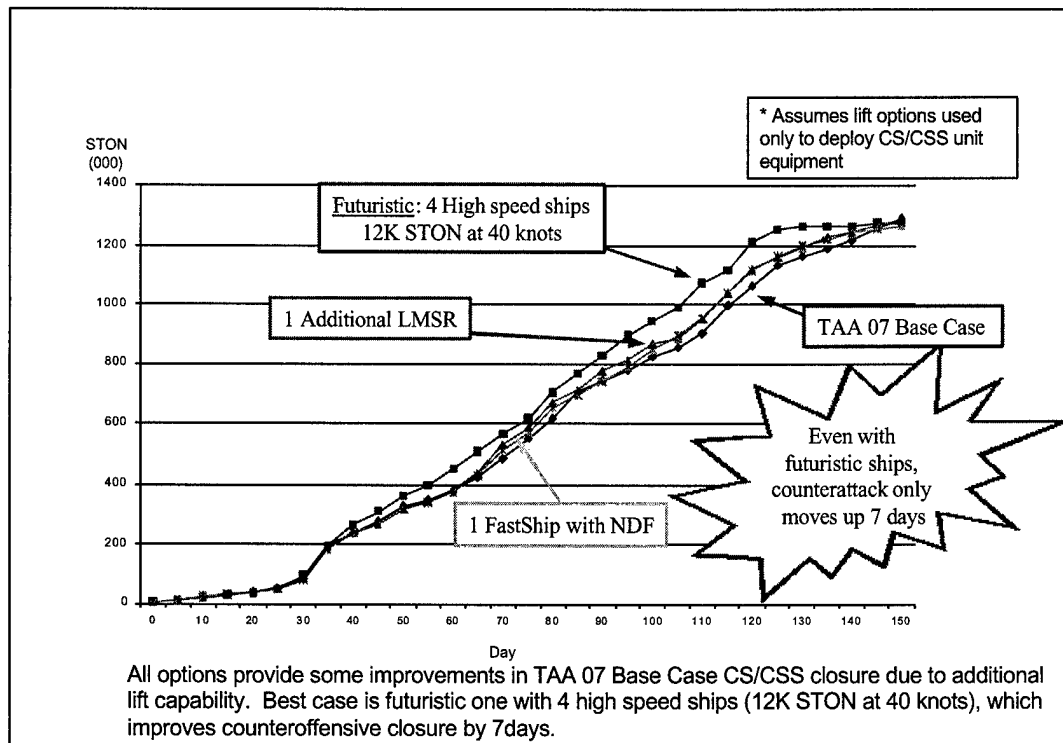


Figure 7. Comparative Impacts on CS/CSS Unit Closure

GDAS model run results are shown in Figure 7 above. CS/CSS is defined as combat support/ combat service support.

1.11 Conclusions

Conclusions reached from this analysis are shown below.

FS greatest utility would be in a flexible deterrent option or certain other SSCs.

- More capable than aircraft, but takes 5-12 days to have available, so decision to use must be made ahead of time.
- Limited to the Atlantic, Mediterranean, and Baltic. Too wide for Panama Canal.

Single FS makes no significant difference to an MTW.

APPENDIX A PROJECT CONTRIBUTORS

1. PROJECT TEAM

a. Project Director

LTC Michael Woodgerd, Mobilization and Deployment Division

b. Project Contributor

Ms. Peggy Loudin

2. PRODUCT REVIEWER

Dr. Ralph E. Johnson, Quality Assurance

APPENDIX B REQUEST FOR ANALYTICAL SUPPORT

P *Performing Division:* MD *Account Number:* 99142
A *Tasking:* Informal *Mode (Contract-Yes/No):* No
R *Acronym:* FSQRA
T *Title:* FastShip Atlantic NDF Proposal: Quick Reaction Analysis
1 *Start Date:* 24-Aug-99 *Estimated Completion Date:* 30-Aug-99
Requestor/Sponsor (i.e., DCSOPS): DCSOPS *Sponsor Division:* DAMO-ZD
Resource Estimates: a. *Estimated PSM:* b. *Estimated Funds:* \$0.00
c. *Models to be*

Description/Abstract: DCSLOG, reacting to tasker from a briefing to Assistant Secretary of the Army, asked CAA to "do deployment analysis on 40 knot ship". LTC Woodgerd researched facts from FastShip, Inc, Military Sealift Command, TRANSCOM, and DCSLOG. Compared the proposed ship against existing LMSR vessel. Also added one such FastShip to available fleet and ran GDAS to compare results against the TAA-07 Base Case. Found no significant advantage to having one of these FS available. Prepared briefing and delivered to DCSLOG with copies to Mr. Hollis and Mr. Bettancourt.

Study Director/POC Signature: Original Signed *Phone#:* 703-806-5438

Study Director/POC: LTC Michael Woodgerd

If this Request is for an External Project expected to consume 6 PSM or more, Part 2 Information is Not Required. See Chap 3 of the Project Directors' Guide for preparation of a Formal Project Directive.

Background:

P
A
R *Scope:*
T

2
Issues:

Milestones:

Signatures *Division Chief Signature:* Original Signed and Dated *Date:*

Division Chief Concurrence: Mr. Franklin Mckie

Sponsor Signature: Original Signed and Dated *Date:*

Sponsor Concurrence (COL/DA Div Chief/GO/SES) DCSLOG: POC is LTC Dinnison